

Earthquake Prediction Breakthroughs

*Shake,
rattle
'n' roll!*

[Several days before going to print, I requested that Stan give NEXUS readers an update on his successes regarding the prediction of earthquakes. As usual he sent me more than enough information, so what follows is the result of my editor's razor. People interested in more details should get onto the Internet and visit his web page at: <http://www.iinet.net.au/~standeyo>. His success rate is astounding! Ed.]

In September of 1995, I discovered a web site on the Internet which was operated by the US Navy. It provided me with computer maps of the entire world twice daily. These maps showed me the absolute temperature of the sea surface across the entire planet.

In the beginning, I was impressed with the colourful images and stored them on my disc for later reference. Some weeks later, I discovered a special global image which the US Navy had just declassified earlier in 1995. This image showed the force of gravity as it varied across the entire Earth. When I saw this image I was amazed. It clearly showed every likely earthquake fault line on the Earth. For some reason, the variations in the force of gravity were most pronounced where there is a fault line.

I could see the 'cracks' where no fault had been obvious before. It was like having a crystal ball—but it did not tell me how to determine when the fault lines would become active. I began to think about what information might work in conjunction with this gravitational anomaly map to help me predict the likely dates of major quakes.

Suddenly, I remembered those sea surface temperature maps which I had stored on my disc. I wondered if the accuracy of the temperatures was such that I could see a temperature change in the areas of the Earth's surface where rapidly increasing shear or compressive forces in the mantle were producing temperature changes.

Quickly, I retrieved the images. At first, I could not see any obvious signs of temperature changes which might indicate the stress buildups. Then I realised that the small changes might be visible if I were to compute the difference between two or more images over a small time span of several days.

The idea worked! Immediately, I saw areas of thermal changes which preceded major earthquakes by about two to four days. I quickly established a folder to hold the OTIS (Optimum Thermal Interpolation System) images which I now receive twice daily from the US Navy's FNMOC (Fleet Numerical Meteorology and Oceanography Center)—which is, by the way, one of the world's foremost oceanographic and atmospheric analysis and forecasting centres.

During the first week, while I was collecting this new data for my 'crystal ball', I found another image which the FNMOC could supply to me. It was a wave-height model (code-named "WAM") for the world and is published on the Internet twice a day. It shows colour patterns which represent the average wave-height at any given point on the surface. With this image I was able to eliminate those areas where I saw severe thermal changes on my OTIS change images from the 'likely quake' list, because I could see that storms were generating the obvious temperature differences.

This method does run into trouble when a storm occurs over a large area which is also a budding quake site. In this case, the temperature changes of the storm overshadow the possible stress-induced temperature changes in the mantle beneath the ocean floor. Still, as crude as this method is at present, I am able to anticipate the location and, to some degree, the severity of 50 to 85 per cent of all major earthquakes, volcanic eruptions and storms about two to four days ahead of time. You might say it gives me the ability to make 'geochange' forecasts... (Certainly, my accuracy is no worse than the weather forecasts we see on our television news programs!)

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"The Art Bell Show"

I was very excited by my discovery; so I phoned my younger brother, Glenn, in Tacoma to tell him what I had found. He suggested that I contact a chap named Art Bell, a late-night, talkback radio host who is syndicated over 240 US stations.

I searched the Web for his email address and sent a short letter to Art at his studio. He phoned me up the very next day and asked me to appear on his show that very day! I explained to him that I was willing to do so, as long as we didn't make a circus out of the info I was going to present and as long as we did not 'panic' anyone with what data we did impart on the possibilities of severe quakes in the US in the next few years.

He agreed and said that we would be on the air about five to 15 minutes; and then we went to air. Well!... We were both amazed at the public response. My segment of the show ran for two hours!

After the show was finished, I started receiving some 100 email letters a day! Art told me and his listeners that my program was just about the most popular show he had ever broadcast and that his fax, tape order and voice phone lines were jammed for the day after the show. In fact, for a week after the show, requests for copies of the show kept his order line and his fax line singing.

A few weeks later, he re-broadcast my show due to popular request. Since then, I have appeared on The Art Bell Show a number of times. His show reaches 12 million Americans—and, I must tell you, this generates a lot of mail and visits to my web page.

Disaster Alerts

Back in November, on 9th, 10th and 11th, I observed a sudden and severe buildup of temperature underneath Italy and most of the Mediterranean Sea. It was so pronounced that I had to warn the Italians. On 12th November I posted the warning. As I finished sending the posting, the first word of eruptions of Mount Etna

began to hit the wire services.

Two days later, on the 14th, a larger eruption hit Mt Etna. It was the last of three which hit during the alert time. I was vindicated—but I realised I had not established a proper alert process to get warnings to the populations in the area of such disasters.

The Earth is Contracting

In the middle of all this quake prediction research, I was contacted by Duncan Roads, your Editor, regarding a fax he had received from an Australian seismologist named Vadim Anfiloff. Duncan asked me to investigate the man and his claims of a revolutionary way to predict 'killer quakes' using a technique he had developed while working for the Australian Government.

I rang Vadim, and we began a most interesting and continuing discourse on his work and the bureaucratic bumbling which had prevented him from warning Kobe of the quake that devastated it on 17th January 1995.

Vadim has found strong evidence that the Earth is now contracting instead of expanding. He has been published in numerous scientific peer reviews and is one of the foremost seismologists in Australia. I have begun a study of his work; but it will be some time before I can say I am able to apply the knowledge he has imparted in his papers, because it is quite involved. If he is right, then the world should immediately throw resources at him in an attempt to avoid certain catastrophes in Japan and California and other equally threatened places. His first article is in this issue.

I am sure that the public is not being told the full story on the urgency of the earthquake threats. Too many US Government agencies and state agencies are preparing the American public and the Australian public and the Italian public and the Japanese public for certain quake calamities in the "next decade sometime... maybe...sort of".

1995: THE YEAR OF THE "KILLER HILLS"

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During 1995, the whole planet was shaken by a phenomenon completely unknown to geoscience. The planet was in the grip of what I have dubbed "killer hills", which were producing a seemingly endless series of big earthquakes.

Kobe and Neftegorsk were destroyed in quick succession by earthquakes emanating from a linked network of killer hills which runs northwards through Japan, the Kuriles and Sakhalin Island (as shown schematically in Figure 1). Killer hills also run along the west coast of the USA, weaving their characteristic bifurcating (or their 'nexus-like', criss-crossing, branching or forking) trail in the topography.

In Australia, where the killer hills were discovered 20 years previously, the quakes of 1995 crept closer and closer to the capitol, Canberra, where worried federal ministers were trying to sort out who had the most credible explanation for earthquakes. Australia has not been prone to earthquakes, but detailed and predictive knowledge of them is the key to, for example, locating safe places to bury toxic wastes.

There is, of course, a profound reluctance on the part of senior seismological experts to explain the cause of earthquakes. In San Francisco, they were even openly admitting that funds had been diverted from trying to predict earthquakes to trying to reduce subsequent fire hazards after a killer quake has struck.

Killer hills occur all over the planet and even on Venus. Now, this can mean only one thing: the Earth is cooling and contracting. Furthermore, this contraction is placing an enormous and persistent compressive force on the Earth's rigid outer crust.

Half a century ago this was considered quite normal, and the many hills and mountains on our planet were considered to be wrinkles caused by powerful contraction. But, there was a big problem in explaining the rift depressions in Africa and Eurasia in terms of persistent compressive forces.

This is when the concept of 'drifting continents' or 'plate tectonics' became entrenched. With this concept, the continents were supposed to break apart and drift like leaves on a pond and then eventually collide again, thus producing mountain chains. But this idea never did work out. One of the big 'flies in the ointment' has been that there are too many rifts which could not all be caused by continents in the

process of breaking apart. This is especially true when one considers that whole continents like Australia are known to be under pervasive, radial compression.

But the other problem is that killer hills encircle all rifts. They completely envelop these narrow depressions—and therein lies the fatal flaw in the whole concept of continental drift.

So, it turns out that the 'contracting Earth' model was correct after all, but with a major twist in the logic. Instead of mountains being compressed across their grain, the compression is being channelled preferentially along them. This builds up fantastic pressures, and the rocks eventually snap at a weak point on a killer hill, sending out a powerful shock wave.

This is the point at which an innocent-looking hill becomes a killer hill. But because these killer hills form a continuous, interlocking and balanced network (nexus) over the whole planet, the balance can be disrupted by an earthquake or a nuclear detonation, causing a spate of earthquakes (not necessarily 'aftershocks') to follow in quick succession.

Kobe was severely damaged by a big quake emanating from a nearby killer hill; and Neftegorsk, situated atop a killer hill on Sakhalin Island, was totally destroyed.

Yet Kobe's agony was not without an astounding benefit for earthquake science. That quake produced data which completely validates the discovery that killer hills are the conduits for the most powerful compressive forces on the planet. The seismic recorders located all over Japan showed that the main earthquake near Kobe and all the aftershocks were distributed along the narrow hill which crosses Osaka Bay and passes behind the devastated city.

A killer hill also passes behind Los Angeles—and after one of the recent earthquakes, the aftershocks threw up clouds of dust along them.

Such hills are typical of the killer hills which occur all over the planet. The role of these killer hills is to concentrate the powerful forces produced by the contraction of the Earth as it cools.

To demonstrate the main principle, one could slide a pencil horizontally into a block of sponge or foam. Then, by squeezing the block between one's hands so that the pencil's point is aimed at the palm of either hand, one can then squeeze the block until the cushioning effect of the sponge is exhausted and the point penetrates through the sponge into the hand. This is an extremely simple analogy to the very big, complex phenomenon of the killer hill. There is a certain amount of compressibility along the hills, but, once this is exceeded, the structure becomes rigid and unyielding.

In 1994, killer hills were even recorded in images of the surface of the planet Venus. It is, furthermore, not unreasonable to assume Venus is also cooling and therefore contracting. A planet is either absorbing heat (heating), radiating heat (cooling), or in a state of equilibrium (unchanging). The latter condition can occur when a planet re-radiates exactly all the extra heat it receives from its parent star and/or from the normal radioactive decay of matter in its core. On Earth, the absence of direct sunlight at the poles produces rapid freezing, so one could conclude there is very little heat emanating from the core.

However, these tricky considerations can be avoided by studying the tectonic processes which deform the crust to produce the structures in which oil and mineral deposits form. After studying 'mountains' of data, it becomes clear that killer hills are the most fundamental structures within continents and, furthermore, that they control the rifting process. Previously it was thought that rifts represented tensional processes, but the concept of killer hills would indicate the opposite: rifts represent compressional forces.

So, it is not surprising that conventional geoscience cannot predict earthquakes accurately. It had always been thought that compression is directed across the hills, not along their length.

The killer hills were discovered in Australia 20 years ago; but since there were few earthquakes in Australia, the discovery was not pursued by contemporary Australian geoscience.

Sadly, Kobe showed the futility of trying to understand earthquakes by studying them as an effect, to the exclusion of the real causal mechanism(s). The last significant earthquake in Kobe prior to the 1995 disaster was in 1485. The modern tremor-recording stations had been in place for only 30 years when the great Kobe quake hit in 1995.

Elsewhere, earthquakes occur more frequently but their pattern and intensity are vague, so the real key to anticipating earthquakes is understanding the overall mechanism of the tectonic processes within continents.

So, Australia turned out to be a good place to study earthquakes after all. It has now been confirmed that compression is indeed transmitted along many hills, rather than across them. This has been deduced by drilling holes deep into killer hills and observing the deformation of the drill cores. The same technique can be used to anticipate major earthquakes far in advance.

The concept of the killer hills phenomenon requires such a radical shift in perspective that it will turn the science of tectonics upside down. It is, however, the only all-encompassing concept which explains all the 'mountains' of geophysical data on continents and rifts. This explanation will be hard to ignore.

Indeed, investigations in Australia into why the discovery was not developed two decades ago have found no 'fault' in the concept or its application to tectonics, and the Australian Government has recently urged that it be promoted worldwide.

As the safe disposal of the ever-growing stockpiles of nuclear waste material is fast becoming a high priority, the placement of these waste materials in a relatively quake-free burial site cries out for a much better understanding of the tectonic processes.

Understanding the overall construction of continents reveals the regions which are inherently less disposed to earthquakes. However, such understanding demands an unshakeable faith in the

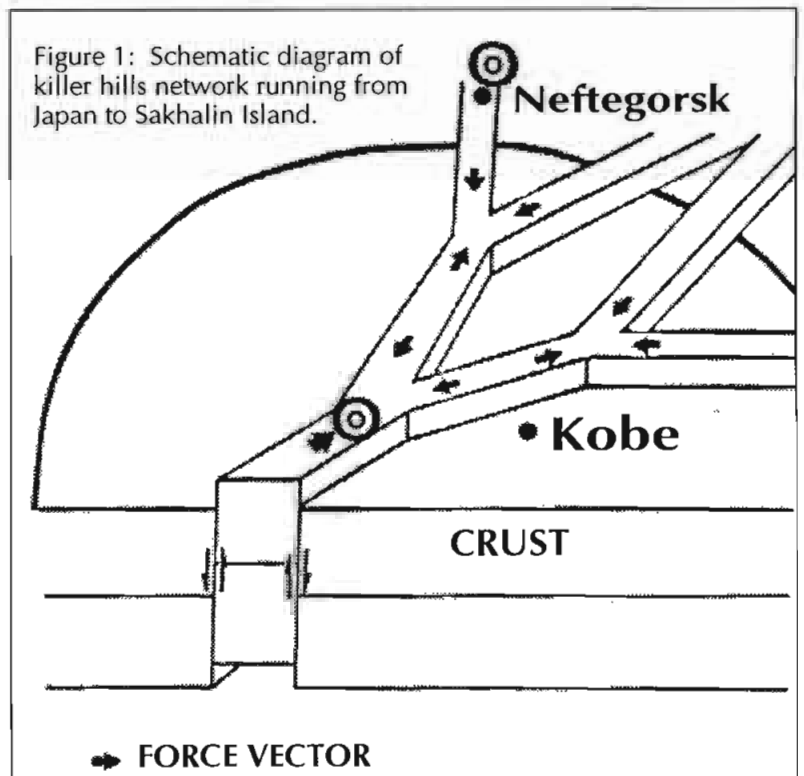
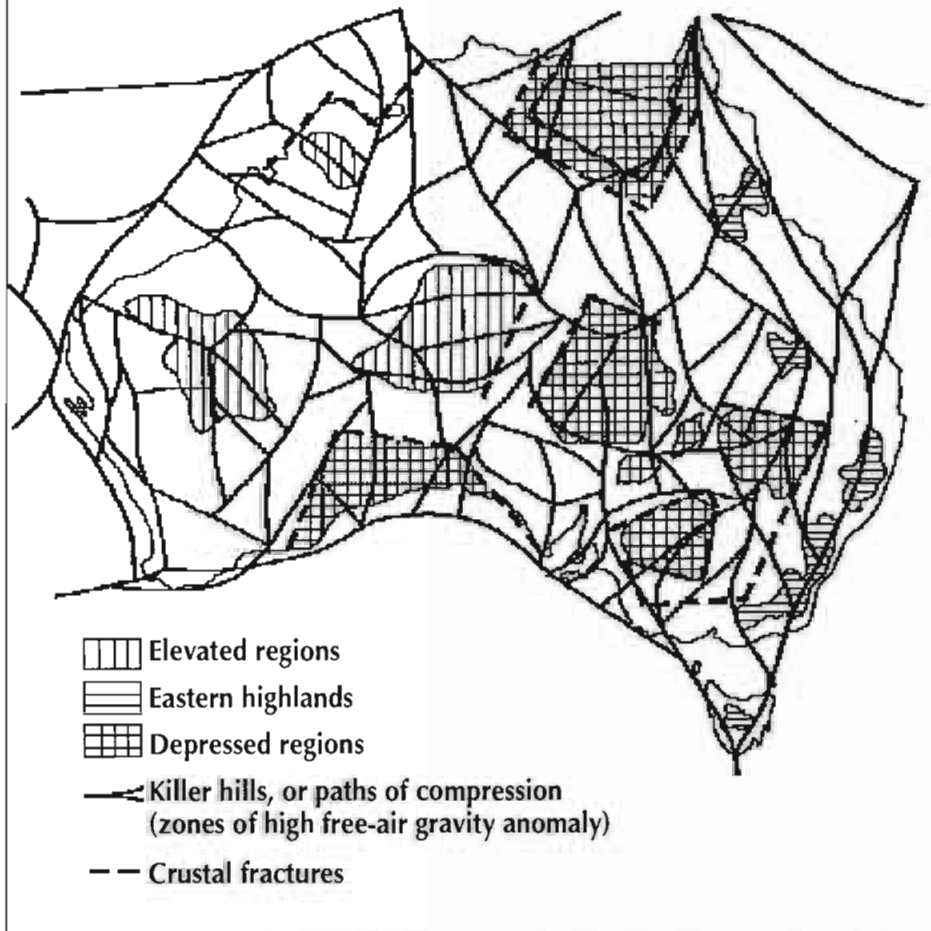


Figure 2: Australia's Killer Hills Network.



concept of a contracting Earth. If one accepts this as axiomatic, then one can see that the compression generated over the entire surface of this contracting planet behaves somewhat like the sponge and pencil analogy. The contraction generates stress loadings which must be distributed across a semi-compressible crust. The distribution of these compression stresses along somewhat equipotential lines generates the killer hills as a skeletal pressure-distribution system.

Using special geophysical data, the killer hills have been mapped all over Australia (see Figure 2). The fact that they form a continuous, interlocking and bifurcating network is the key to the big discovery here. Much of the network can already be seen in ordinary topographical maps.

It is particularly significant that the killer hills join large continents together. Thus, North and South America are joined together at the narrow isthmus of Panama, and Africa and Europe are joined at Gibraltar. There are many other similarly narrow joins between land masses all over the Earth.

The killer hills are the central nervous system of the planet. They lock the continents together, preventing them from drifting apart. The idea of 'drifting continents' was inspired by the fact that there is a narrow earthquake zone along the whole length of the mid-Atlantic Ridge, and that the northern and southern Atlantic Oceans are the same width. This even inspired the idea that the Earth is expanding, but, in recent years, new data has devastated the whole 'drift' concept because it now turns out that the northern Atlantic formed well before the southern part.

The northern and southern Americas could not have drifted an equal amount in two separate episodes, nor could the drift have avoided breaking the join between these two large continents at Panama (and leaving Europe and Africa joined together at

Gibraltar, as well). So the mid-Atlantic Ridge must represent some completely different process associated with large-scale crustal melting.

The central nervous system is the key to earthquakes, but there are many types of earthquakes. Without discovering the killer hills by independent means, most of them cannot be differentiated, except that, perhaps, killer hills produce the biggest killer earthquakes within continents. The reason they produce very big earthquakes is that the compression builds up along them until it reaches the breaking point at the weakest zone in the interlocking network. Then, a huge shock wave is emitted which radiates out, destroying everything close by. The shock is, of course, also transmitted preferentially along the killer hills and thus causes a network reverberation across the entire surface of the Earth.

Clearly, then, detonating a nuclear device will send shock waves over the entire global network of killer hills if the coupling between the blast and a nearby killer hill is rich. The energy of such a blast is dissipated rapidly in all directions. Moreover, because underground tests have always been in the soft sediments of small basins between killer hills, these sediments have cushioned and, hence, absorbed these blasts. In such cases, the coupling would have been poor.

The latest French tests in the Pacific have been relatively small and too shallow to produce a rich coupling to the crust, but a large detonation deep within a killer hill could produce a powerful jolt which, in turn, could trigger a spate of earthquakes anywhere in the world. ∞

Reference:

Anfiloff, V., "The Tectonic Framework of Australia", in *New Concepts in Global Tectonics* (S. Chatterjee and N. Hotton III [eds.]), Texas Tech. University Press, Lubbock, USA, 1992, pp. xii, 450.

About the author:

Vadim Anfiloff, B.Sc., worked for many years for the Geological Survey of Australia, producing studies on gravitational anomalies and plate tectonics. As long ago as 1976, he was heavily involved in producing the official gravitational anomaly map of Australia and surrounding land masses. He is one of the world's foremost experts in tectonic plate theory, and it has taken him 20 years to correct a great error in the accepted or official concept regarding the dynamics of tectonic plates.

Anfiloff has struggled against bureaucratic red tape, peer group pressure, and, worst of all, attempts to hide his findings by other Australian scientists who, believing their credibility might somehow be threatened, would not let him warn countries such as Japan long before the Kobe quake struck.

Vadim Anfiloff is now a consulting geophysicist in the private sector, and can be contacted at GEO PROCESS, PO Box 774, Canberra City, ACT 2601, Australia; phone/fax +61 (0)6 258 7032.